FIRE PROTECTION TANK SHOP DRAWINGS
2003 NFPA 22 and 2002 NFPA 13

Listed items require fire protection tank system shop drawing revisions or manufacturer product cut sheets verifying listing by a nationally recognized testing laboratory. *Answers in letter form are not acceptable*. **Starting construction before plans approval may be considered as just cause by the State to issue a stop work order. [Rule 0780-2-7-.09]**

1. Provide plans & specifications through the electronic plans submittal portal **or** provide one (1) full size paper copy of plans, one copy of specifications, one pdf copy on a CD accompanied with a letter of certification stating that the pdf copy is an identical copy of the paper copy. The documents submitted are to include the fire protection tank system shop drawings with specifications and manufacturer product cut sheets verifying listing, or provide the documents on a CD. [NFPA 22 4.5 and 2002 NFPA 24 4.1.1]

2. The location of tanks must be such that the tank and structure are not subject to fire exposure. If lack of yard room makes this impracticable, exposed steel must be fireproofed or protected by open sprinklers. This protection must be provided for steel within 20 feet. [NFPA 22 4.2]

3. Piping connections and fittings. [NFPA 22 Chapter 13]

   A. Check valves. [NFPA 22 13.2.11 and 13.4.1]

   B. Controlling valves. [NFPA 22 13.2.12]

   C. Filling pumps. [NFPA 22 13.4.2]

   D. Steel Pipe must comply with NFPA 22 13.1.15.

4. Water tank must have a water level gauge and be supervised indicating abnormal high or low water level. [NFPA 22 13.1.11 and 2002 NFPA 72 5.13.3]

5. Water temperature must be supervised for protection against freezing. [NFPA 22 Chapter 15 and 2002 NFPA 72 13.4]

6. Pressure tank must be provided with an approved means for automatically maintaining the required air pressure. [NFPA 22 7.1.4 and 7.2.10]

7. Pressure tanks must be kept with a supply of water to meet the demand of the fire protection system as calculated by NFPA 13 Chapter 14 and for the duration of NFPA 13 Chapter 11. [NFPA 22 7.1.4]

8. Provide an approved trouble alarm to indicate low air pressure and low water level with the alarm supplied from an electrical branch circuit independent of the air compressor. [2002 NFPA 72 5.13.2.2 and 5.13.3]

9. Provide water level indicator for pressure tank. [NFPA 22 7.2.5]

10. The pressure tank discharge pipe must be at the bottom of the tank (minimum four inch pipe with OS&Y valve). [NFPA 22 7.2.2.1]

11. Filling pipe shall be minimum 1½ inches, run separately from the filling pump, and must be connected to the top. [NFPA 22 7.2.3]

12. Air pipe must be a minimum of one inch. [NFPA 22 7.2.4]

13. Provide water level gauges for pressure tank or elevated tank. [NFPA 22 7.2.5, 9.6.3 and 13.1.11]

14. Provide a relief valve between check valve and air compressor for pressure tank minimum ¾ in. set to operate 10% in excess of the normal tank pressure. [NFPA 22 7.2.7]

15. Lightning protection must be installed per 2004 NFPA 780, Standard for the Installation of Lightning Protection Systems. [NFPA 22 4.9]

16. Tank roofs must be provided and with vents when airtight. [NFPA 22 4.14.1 and 4.15.1]

17. Valve Pit or Valve House with heater must be provided where the tank is on an independent tower. [NFPA 22 Chapter 14]

18. Discharge pipe must be minimum 6 in. for tanks up to and including 25,000 gallons, 8 in. for tanks 30,000 to 100,000 gallons, and 10 in. for greater capacities. [NFPA 22 13.2.2.2]

19. Where a house that is located above grade with no large pit beneath it is used, it must be necessary to place the OS&Y gate valve in the vertical part of the tank discharge pipe and to construct a small brick or concrete pit or well to contain the check valve in the horizontal pipe below the frost line. [NFPA 22 14.1.1.3]

20. Where the valve pit is located below grade, it must be built of portland cement concrete with a clean aggregate. [NFPA 22 14.1.2.1]

21. A valve house that is located above grade must be constructed of concrete, brick, cement plaster on metal lath, or other noncombustible material with suitable heat-insulating properties. [NFPA 22 Table 14.1.2.4]

22. The heating system must be of such capacity that the temperature of the coldest water in the tank or riser, or both, is maintained at or above 42°F during the coldest weather. [NFPA 22 15.1.2]

23. A low water temperature alarm set at 40°F must be provided. [NFPA 22 15.1.2.2]

24. The following requirements shall apply to pressure supervisory signal-initiating devices: A pressure tank supervisory signal-initiating device for a pressurized limited water supply, such as a pressure tank, must indicate both high- and low-pressure conditions. The off-normal signal must be initiated when the required pressure increases or decreases by 10 psi. [2002 NFPA 72 5.13.2.2]

25. Water Level Supervisory Signal-Initiating Device: Two separate and distinct signals must be initiated: one indicating that the required water level has been lowered or raised (off-normal) and the other indicating restoration. [2002 NFPA 72 5.13.3.1]

26. A pressure tank signal-initiating device must indicate both high- and low-water level conditions. The off-normal signal must be initiated when the water level falls 3 in. or rises 3 in. [2002 NFPA 72 5.13.3.2]

27. A supervisory signal-initiating device for other than pressure tanks must initiate a low water level signal when the water level falls 12 in. [2002 NFPA 72 5.13.3.3]

28. Water Temperature Supervisory Signal-Initiating Device. A temperature supervisory device for a water storage container exposed to freezing conditions must initiate two separate and distinctive signals. One signal must indicate a decrease in water temperature to 40°F and the other must indicate its restoration to above 40°F. [2002 NFPA 72 5.13.4]